# TOWN LAKE REPORT CARD

| | | | | | |
|---|---|---|---|---|---|
| DATE OF EVALUATION: | **May-01** | CONDITION | **GOOD** | SCORE | **89** |
| PREVIOUS EVALUATION: | **Apr-01** | CONDITION | **EXCELLENT** | SCORE | **96** |

| | | | 4 pts | 3 pts | 2 pts | 1 pt | |
|---|---|---|---|---|---|---|---|
| CONDITION | RESULT | RATIONAL | EXCELLENT | GOOD | FAIR | POOR | SCORE |
| Transparency - SDz (m) | **0.9-1.6** | aesthetics | 1.5-2.0 | 1.0-1.4 | 0.5-0.9 | <0.5 | **3** |
| Dissolved oxygen (mg/L) | **8-14** | aquatic life, sediment nutrient release, odors | >7.0 | 5.6-6.9 | 4.1-5.5 | <4.0 | **4** |
| Nitrogen, total (mg/L) | **1.30** | algae and macrophyte growth | <0.5 | 0.6-1.0 | 1.0-2.0 | >2.0 | **2** |
| Phosphorus, total (mg/L) | **0.034** | algae and macrophyte growth | <0.05 | 0.06-0.20 | 0.21-0.50 | >0.5 | **4** |
| Turbidity (NTU) | **1-5** | aesthetics, State std | <10 | 11-25 | 26-50 | >50 | **4** |
| Chlorophyll-a (ug/L) | **3-12** | aesthetics, oxygen balance | <20 | 21-50 | 50-75 | >75 | **4** |
| Algae density (no./mL) | **max 1.4 x $10^4$** | aesthetics | <1 x $10^5$ | 1-5 x $10^5$ | 5 x $10^5$ -1x $10^6$ | >1.0 x $10^6$ | **4** |
| Macrophytes (% cover) | **<1** | aesthetics, boating | none | <10% | 11-20% | >20% | **4** |
| Depth, maximum (m) | **19** | macrophyte management | >5 | 4-5 | 2-4 | <2 | **4** |
| Midge larvae (no.per sq m) | **360** | aesthetics | <200 | 200-400 | 500-800 | >800 | **3** |
| Mosquitoes (no/trap night) | **0-1** | aesthetics and public health | <20 | 21-50 | 51-100 | >100 | **4** |
| Algae form (dominant) | **greens dominant; w/ few diatoms and blue-greens** | aesthetics, treatability | greens or diatoms; no floating mats | greens and blue-greens; few floating mats | green filamentous, floating mats common | blue-green filamentous; floating mats dominant | **3** |
| pH (SU) | **8.3-8.8** | swimming, fishery, ammonia toxicity | 6.5-8.0 | 8.0-9.0 | 9.0-10.0 | >10.0 | **3** |
| Odors | **absent** | aesthetics | absent | slight | moderate | strong | **4** |
| Coliform bacteria (#/100 mL) | **500** | public health | <100 | 100-200 | 201-1000 | >1000 | **2** |
| Fecal bacteria (#/100 mL) | **30** | public health | <100 | 100-200 | 201-800 | >800 | **4** |
| *E. coli* bacteria (#/100 mL) | **30** | public health | <20 | 21-80 | 81-200 | >200 | **3** |
| Carlson Trophic Status | **56** | eutrophication | <60 | 61-70 | 71-80 | >80 | **4** |
| Color | **green to clear w/ no plant pieces** | aesthetics | clear to slightly greenish | fairly clear, slightly greenish | greenish; pieces of algae and plants | very green; algae bloom | **4** |
| Waterfowl (no. per acre) | **<2** | nutrient and bacteria loading | <2 | 2-5 | 6-10 | >10 | **4** |

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|---|---|---|---|---|---|---|---|
| CONDITION | RESULT | RATIONAL | EXCELLENT | GOOD | FAIR | POOR | **SCORE** |
| Benthos | **midge and dragonfly larvae** | fishery | high species diversity-intolerant species; shallow sediments; low organic content | moderate diversity-mostly intolerants; moderate sediment depth & organics | moderate diversity-mostly tolerant species; moderate sediment depth; high organic content | low diversity-mostly tolerant species; deep sediments; high organic content | **4** |
| Sedimentation (cm/yr) | **shallow sediment** | reduced lake volume, macrophytes | shallow sediment, low organics, <1 cm/yr deposited | shallow sediment, low organics, 1-3 cm/yr deposited | moderately deep sediment, moderate organics, 1-3 cm/yr deposited | deep sediment, high organics, >3 cm/yr deposited | **4** |
| Fishery | **none observed** | recreation, aesthetics | no fish piping; no fish kills | some fish piping, gulping; no fish kills | fish piping before dawn; occasional fish kills | fish piping common; fish kills common | **4** |
| Shoreline/banks | **some shoreline filaments** | aesthetics | no evidence of salt crusts or algal scums | some white deposits and scums | numerous patches of salt deposits and algae scums | most of lake shore covered with crusts or scums | **3** |
| Zooplankton density | **moderate; cladocera dominant** | fish food organisms, algae control | abundant; cladocerans dominate | abundant; copepods & rotifers dominate | moderate; rotifers and copopods dominate | low; rotifers dominate | **3** |

| **SCORING KEY:** | Excellent | Good | Fair | Poor |
|---|---|---|---|---|
| | 90-100 | 75-90 | 50-75 | 25-49 |

***Definitions: Ratings***

Excellent: Lake aesthetic and operational conditions above level of expectation.
Good: Lake aesthetic and operational conditions at level of expectation.
Fair: Lake aesthetic and operational conditions slightly below level of expectation.
Poor: Lake aesthetic and operational conditions considerably below level of expectation.

*Definitions: Terms*

Benthos: Bottom dwelling organisms
Carlson Trophic Index: A series of calculations incorporating transparency, chlorophyll and phosphorus data used to provide a quantitative estimate of the degree of eutrophication in a lake.
Chlorophyll: Pigment in green plants involved in photosynthesis used to estimate the density of algae in the water column.
Coliform bacteria: Enteric bacteria used as an indicator of the sanitary condition of the water.
Eutrophication: Process by which lakes age by increasing in nutrient (nitrogen and phosphorus) content and plant life.
Fecal bacteria: Any of the bacteria types provided by the fecal matter of warm-blooded organisms.
Macrophyte: Large plant, observable without the aid of a microscope, that may be floating, submerged or emergent.
Midge: Small, flying, non-biting "gnat-like" insect whose larval stage exists in the lake sediments (bloodworm).
N/A: not applicable; insufficient data or too early in development of lake (an arbitrary 3 rating is provided for these items).
pH: Amount of acid in the water identified on a scale of 1-14; 1 being most acid, 7 being neutral, and 14 being most caustic.
Phytoplankton (algae): Microscopic plant fraction of the plankton community.
Piping: Act of fish coming to surface of water and capturing a bubble of air in their mouth; a sign of low oxygen concentrations.
Plankton: Organisms of relatively small size that have relatively small powers of locomotion or that drift in the water.
Sedimentation: Rate at which solids accumulate on the lake bottom.
Transparency (SDz): Depth to which a standard disk can be observed in the water column.
Turbidity: Degree to which particles and color in the water scatter light; the "cloudiness" of the water.
Zooplankton: Animal fraction of the plankton community